DEQ – Air Quality Division
SUMMARY OF NEGOTIATED RULEMAKING
DAIRY PERMITTING
Docket No. 58-0101-0502
November 3, 2005

PARTICIPANTS

Bauer, Martin – DEQ
Beard, Phyllis – Amalgamated Sugar
Bilderback, John – ISDA
Carlson, Rich – Idaho Rural Council
Conder, Jim – Citizen
Eddie, Bill – Advocates for the West
Haynes, Claudia - Canyon County
Kelly, Kate – Idaho Senate
Knight, Lloyd – Idaho Cattle Association
Kronberg, Lisa – Attorney's General Office
Louks, Bruce – DEQ
McClure, Ken – Givens Pursley
McLean, Lauren – Idaho Conservation League
Olmstead, Brent – Milk Producers of Idaho
Patten, Marv – ISDA
Sheffield, Ron – University of Idaho
Smith, Ed – Citizen
Smith, Toy – Northwest Dairy Association
Heitman, Phyllis – DEQ (Admin Support)

DISCUSSION

Martin Bauer opened the meeting. The committee continued discussion of the Best Management Practice (BMP) list, including review of each definition, point value and method for determining compliance.

FREESTALL BARNS

Scrape ~~Up~~ Build~~d~~t Up Manure.
Definition: Removal of build~~d~~t up manure around the yard and manure handling system. Specific emphasis on ends of barns, around collection pits, mixing tanks and manure loading areas. Also effective in reducing odors and fly production.

Points: Open Lot - 0 points; Freestall Scrape – 3 points; Freestall Flush – 3 points

Compliance: Observation

Discussion: This BMP is the removal of material from inappropriate locations every five to eight days, or when needed due to spills. A deviation log could be used to document built-up material in instances when a scraper breaks down. Marv Patten stated that the inspector could tell the age of the product so he will know if the procedure has been used.

The group discussed whether points should be pro-rated for partial use of a method, for instance an operator scraped 95% of the material and left 5%. Mr. Sheffield said the points in

the chart were developed to be all or nothing. Mr. Bauer said the inspector needs to be able to use some discretion in deciding if a violation has occurred in a BMP. This may not be noted on the inspection report the first time, but could be noted upon re-inspection.

Mr. Patten said he did not think this BMP requires recordkeeping.

INCORPORATION OF BMP CHART IN RULE

Kate Kelly asked if the definitions and compliance methods agreed to at the last meeting were only documented in the minutes. She asked if they are going to be incorporated into the rule or into the BMP chart. Ron Sheffield suggested making compliance part of the one-page BMP list to make it readily available to the operator. Lisa Kronberg said the BMP chart could be included in the rule.

Frequent Manure Removal.

Definition: Practice is under evaluation at the University of Idaho and Texas A&M. No recommendation at this time.

Points: Under Development

Compliance: Under Development

Discussion: There is insufficient information on this technology at this time

Tunnel Ventilation.

Definition: Engineer~~ing~~ed mechanical ventilation system which draws fresh air into a barn through an open end wall by a slight negative pressure that is created by exhaust fans mounted at the opposite end wall.

Points: Open Lot - 0 points; Freestall Scrape – 0 points; Freestall Flush – 0 points

Compliance: None

Discussion: Ventilation, and therefore emissions, is controlled from the freestall facilities. Zero points are designated for this BMP because the system simply adds ventilation and does not actually treat the material. This system does provide an opportunity to add treatment equipment.

Tunnel Ventilation with Biofilter.

Definition: Tunnel ventilation system that exhausts air into a biological biofilter for air treatment. Biofilter material should contain 50% shredded wood and 50% finished compost. System is also effective in reducing hydrogen sulfide and dust from barns.

Points: Open Lot - 0 points; Freestall Scrape – 10 points; Freestall Flush – 10 points

Compliance: Observation

Discussion: Air flows out of the back of the barn and is ducted into a plenum, which uses pallets covered with chicken wire and a layer of compost and shredded wood. This BMP uses a large air dispersion system with carbon material. The ammonia attaches to the carbon and the microbes in the compost decompose the volatile compounds. The carbon system is changed out approximately every four years. No ammonia odor emitted.

Tunnel Ventilation with Washing Wall.
Definition: Tunnel ventilation system that exhausts air into engineered washing wall for air treatment. Washing wall is designed to remove ammonia and dust from barn using a cascade of recycled water. Water may be acidified to increase ammonia removal. Systems are also effective in reducing odor and dust from barns.

Points: Open Lot - 0 points; Freestall Scrape – 10 points; Freestall Flush – 10 points

Compliance: Deviation Log

Discussion: This system operates in a manner similar to a home swamp cooler, except the air flows in reverse. Air is pulled through a cardboard-like area through which water drips. Humidity increases as air passes through the area; the ammonia passes through the water, and becomes soluble. The treatment system strips the ammonia out of the water. The practice is less effective in the summer due to the very high ventilation rate. Washing walls have a very high efficiency rate, but compliance points are less because they are only effective during three-quarters of the years. Currently, there are no systems being operated in Idaho.

OPEN LOTS AND CORRALS

Rapid Manure Removal.
Definition: Removal of winter time manure and corral bedding from open lot surface in early spring or as quickly as practicable. Manure can then be stockpiled, composted or exported off of the dairy.

Points: Open Lot - 4 points; Freestall Scrape – 2 points; Freestall Flush – 2 points

Compliance: Observation, if the inspector is present when removal is being done; Recordkeeping if the inspector is not present when removal is being done

Discussion: This method is used in the spring to dispose of winter-time accumulation. When the material is disturbed or begins to heat up in the spring, it creates ammonia emissions. The material should be removed as soon as possible from the farm or moved into a composting system. Idaho might have 45-50 facilities that would currently qualify for this BMP. The dairy's Nutrient Management Plan (NMP) could potentially provide the needed documentation for this BMP depending on what disposal method is used. If a dairy would like to use this BMP, it will be required to show documentation. Regulatory agencies have the authority to view the NMP recordkeeping documents to audit the operation; however, these documents are not available to the public. The inspector could state in his report that the NMP was used to verify compliance.

Corral Harrowing.
Definition: Corral harrowing to distribute deposited manure, reshape corral surface and/or remove manure from corral surface. Harrowing should be conducted no less than three times per week when weather conditions permit.

Points: Open Lot - 4 points; Freestall Scrape – 2 points; Freestall Flush – 2 points

Compliance: Observation

Surface Amendments.

Definition: Use of liquid and dry chemical products that will bind or chemically target the conversion of urea to ammonia gas. Product effectiveness and described use should be specified by manufacturer testing. Examples of products may include, but are not limited to: alum, magnesium sulfate, acids.

Points: Open Lot - 10 points; Freestall Scrape – 5 points; Freestall Flush – 5 points

Compliance: Recordkeeping – documented with receipts for product orders

Discussion: Surface amendments are extremely effective when used properly. The manufacturer prescribes when and how often to use the products for desired results. Amendments are typically applied several times during the year. Application would probably occur immediately behind harrowing.

In-Corral Composting/Stockpiling.
Definition: Stockpiling and subsequent drying and potential decomposition of winter manure and bedding in-corral through summer and fall. Practice encourages the timely stacking and cleaning of corral surfaces. Practice cannot receive additional points through carbon-to-nitrogen ratio manipulation.

Points: Open Lot - 4 points; Freestall Scrape – 2 points; Freestall Flush – 2 points

Compliance: Observation

Discussion: Manipulating the carbon-to-nitrogen ratio (35:1) is a practice that optimizes the breakdown of manure and inhibits the volatilization of ammonia. The material is stacked in an area and a crust is created. This is not true composting in that the material does not break down. If the facility is bedding with a quantity of straw, carbon-to-nitrogen ratios used in composting might be present, but the practice will not receive additional points for carbon-to-nitrogen manipulation. Stacking the manure does not qualify as true composting.

ANIMAL NUTRITION

Manage Dietary Protein.
Definition: With the assistance of a professional nutritionist, develop and follow a strategy to feed closer to Natural Resources Conservation Service guidelines and production requirement, incorporate phase feeding or use of appropriate amino acids or enzymes.

Points: Open Lot - 2 points; Freestall Scrape – 2 points; Freestall Flush – 2 points

Compliance: Recordkeeping – documented with receipts from protein orders

Discussion: Most large dairies have a nutritionist that comes on-site to develop a feeding program to give the dairy the maximum milk production. The plan is documented by the nutritionist. A comment was made that having a nutritionist to evaluate the rations should be sufficient to receive the compliance points since he would be analyzing the feed for effectiveness, productivity, and cost. Documenting the effectiveness of the nutritionist may be difficult.

Bill Eddie suggested dropping this BMP because of its complexity and the fact that only two points are awarded. Even though the dairy uses a nutritionist, ammonia emissions may not

necessarily be reduced. Mr. Patten stated this is a valuable BMP and operators are able to manipulate feeds to reduce ammonia. Reduction of ammonia is one benefit that comes from a well-managed nutrition program. However, documenting for the inspector could be difficult. When the nutritionist maximizes productivity, he is looking not only at milk flow but also at component values, herd health, longevity of the herd. A good feeding program minimized urea formation within the animal. The comment was made that there is the potential that a dairy may have a nutritionist's plan but, for whatever reason, chooses not to follow it.

Ms. McLean read from the April 12, 2005 meeting minutes that the producer could document for the inspector what the protein content of the feed is but not describe exactly what is fed. In the context of that previous discussion, using receipts as documentation seems to be the most practical. The inspector would be reviewing records already kept by the dairy. Ms. Kronberg said the inspector could look at the records and enter the protein content number in his report but will not take copies.

Mr. McClure said he thought the inspector would check a box that the points were satisfied and not enter any numbers.

COMPOSTING PRACTICES

Alum Incorporation.
Definition: Regular incorporation of aluminum sulfate with fresh material to reduce ammonia volatilization. Dissolved phosphorus will also be reduced in the applied product.

Points: Open Lot - 12 points; Freestall Scrape – 8 points; Freestall Flush – 6 points

Compliance: Recordkeeping – documented with receipts

Discussion: This BMP is similar to the adding surface amendments as previously described. These substances are binding agents that prevent the volatilization of ammonia.

Carbon-to-Nitrogen Ratio Manipulation.
Definition: Management and material selection to insure that the carbon-to-nitrogen ratio is greater than 35:1 in the finished compost material. Lower carbon-to-nitrogen ratios will encourage greater ammonia volatilization. Practice should not be allocated toward "In-Corral Composting/Stockpiling."

Points: Open Lot - 10 points; Freestall Scrape – 7.5 points; Freestall Flush – 5 points

Compliance: Recordkeeping

Discussion: This method adds material or manipulates the blend of various components to the pile to maintain the ratio of 35:1. The dairy maintains documents on the ratio.

Composting with Windrows.
Definition: Aerobic decomposition of manure or other organic materials placed in long rows. The windrows can be actively turned, passive, actively aerated windrow, or passively aerated windrow. Temperature is between 110 to 150 F, carbon-to-nitrogen ratio is 20:1 to 40:1, ~~and~~ moisture is 40% to 60%, and pH is 5.5 to 9.0.

Points: Open Lot - 0 points; Freestall Scrape – 0 points; Freestall Flush – 0 points

Compliance: None

Composting with Static Piles.
Definition: Engineered composting system through the aerobic decomposition of manure or other organic materials placed in long rows that are not turned/mixed but have aeration pipes installed to facilitate increased air transfer. Bulking agents such as shredded wood should be used to ensure pile porosity.

Points: Open Lot - 6 points; Freestall Scrape – 4.5 points; Freestall Flush – 3 points
Point difference relates to the moisture content.

Compliance: Observation

Discussion: This method is low maintenance composting. The dairy does not achieve the same breakdown as if it were being monitoring, turned and or if oxygen and carbon-to-nitrogen ratios were used. This BMP is not used in Idaho at the present time.

Force Aeration Composting.
Definition: Engineered ~~C~~composting method using long rows or containers where air is drawn or forced into the piles using mechanical blowers. These piles are not turned. Make sure air is dispersed evenly through the pile. Bulking agents such as shredded wood should be used to ensure pile porosity.

Points: Open Lot - 10 points; Freestall Scrape – 7.5 points; Freestall Flush – 5 points

Compliance: Observation

Discussion: This process is the same as the Composting with Static Piles but air is injected.

Force Aeration Composting with Biofilter.
Definition: Engineered ~~C~~composting method using long rows or containers of carbon material where air is drawn through the compost and discharged into a biofilter. These piles are not turned. Bulking agents such as shredded wood should be used to ensure pile porosity.

Points: Open Lot - 12 points; Freestall Scrape – 8 points; Freestall Flush – 6 points

Compliance: Observation

Discussion: This process is the same as Forced Aeration but a filter is added to end of the pipe. The carbon filter gathers and removes excess ammonia. This BMP is not used in Idaho at the present time.

LAND APPLICATION PRACTICES

Soil Injection – Slurry.
Definition: Placement of manure slurry or separated solids beneath the soil surface with a minimum of mixing or stirring of the soil. Rate of slurry is not to exceed the Nutrient Management Plan recommendation for the actively growing crop.

Points: Open Lot - 10 points; Freestall Scrape – 15 points; Freestall Flush – 7.5 points

Compliance: Recordkeeping

Discussion: This method cuts a trench into which slurry is piped and then covered. It is incorporated into the soil as opposed to laying it on the top. This practice occurs on the dairy and material is not exported. Soil injection will most often be performed by a sub-contractor, so documentation could be through use of a receipt. Injection would also be part of a NMP. Documents used in the NMP review could be used for verification. In seeking new permits, Mr. McClure said it is the dairies' assumption they will submit documents to DEQ showing how the operators intend to comply with the permit by rule and how they will justify their compliance points. For example, if the dairy is going to rely on documentation from an NMP for these points, it will need to demonstrate it has complied with the NMP.

There was a question asked about point values when material is shipped off-site and whether points are pro-rated for the percentage of material kept on-site. The committee said it did not want to build exportation into the plan. The values apply only to the percentage of material being treated on-site. Mr. Eddie suggested adding a footnote to the BMP table that states "points will be pro-rated to reflect actual on-site waste treatment."

It was also suggested the table indicate "points do not apply to exported material." Mr. McClure said he would like more discussion on exported materials at a future meeting. Whether the material is handled at the facility or off-site, should not matter because ammonia reduction is still being achieved. Other members of the committee agreed further discussion is needed.

Incorporation of Manure within 24 Hours.
Definition: Tilling of field surface following liquid or solid manure application within 24 hours. Also effective in reducing hydrogen sulfide emissions and fly propagation.

Points: Open Lot - 10 points; Freestall Scrape – 10 points; Freestall Flush – 10 points

Compliance: Undecided - - Recordkeeping: documented twice: when applied and again when incorporated

Discussion: This method as well as the Incorporation within 48 Hours provides an incentive to turn material under quickly to inhibit or prevent the volatilization of ammonia. This BMP is a seasonal practice and the points are scaled accordingly.

There was discussion about maintaining logs stating when the material is applied and when it is incorporated. Mr. McClure said the dairies are concerned about the quality of recording done by farm laborers since these folks are not typically required to do a lot of paperwork. Ms. Haynes added that the farm managers should be responsible for keeping the records. Mr. McClure said he is concerned the dairies will perform practices as stated in the permit by rule, but that the compliance records will be considered inadequate by DEQ. They do not have clerical help and the manager's primary focus is taking care of the farm, not keeping and filing paper. Senator Kelly said the record would be a check in a box and Mr. McClure said that would be okay. The dairies do not want to prepare a set of papers for the NMP and a second set of papers for DEQ. Mr. Bauer said there will be flexibility in how the forms are designed. He does not think compliance in this case can be determined by observation or with a deviation log. Ms. McLean suggested deleting these two methods if the dairies are not willing to perform recordkeeping. If

the operator says he completed the task in the appropriate time frame but the neighbors say he did not, the dairy needs some record to show that the activity was done on time.

One member asked if a daily log is maintained for milk production. Mr. Patten said there is tracking in regard to cow health, reproduction, heat cycles, breeding, and feed. Ms. McLean asked if he could explain the recordkeeping required for an NMP. Mr. Patten said facilities track, among other things, the timing and amounts of applications made to individual fields, and materials exported. Mr. McClure said again there would need to be two records and the two records would need to be compared to verify the material is incorporated on time.

Mr. Patten explained the milk production inspection system and distributed samples of the forms ISDA uses. He also gave Mr. Bauer a copy of the Pasturized Milk Ordinance Manual for information. Mr. Patten explained the Grade A Dairy Farm Inspection process. It is a 100 point system with a checklist-type form and a section for remarks. All items on the milk inspection list are done by observation except for one item, which is done by reading a temperature control recording device. There is also a procedure for repeat violations.

The comment was made that incorporation of the material in 24 or 48 hours is probably one of the most noticeable things to the public. This practice is very prominent compared to those BMPs where equipment like biofilters is used. While there may be some burden in maintaining records as Mr. McClure described, the commenter stated the dairymen would gain benefit from positive public opinion.

Mr. McClure reiterated that he is very concerned that the dairy folks are not equipped like mines or factories to collect and file papers and maintain data. He reminded the group that the industry has not complained about reliance upon records that already exist or that are kept in the ordinary course of doing business, however, industry has complained about the need to create new records. If the public already watches and knows the dairy is complying, why is a record needed. The question was asked, under what circumstances could a neighbor who knows incorporation is not happening challenge the operator's right to earn those points. Mr. McClure said he assumed the neighbor would look at how the permit is issued, realize that the operator is relying on the permit, and call ISDA and let them know incorporation is not taking place within the specified number of hours. Another committee member pointed out that recordkeeping should not necessarily be viewed as a burden; it is also a defense against charges of violations that are unsubstantiated. Recordkeeping takes the "he said/she said" out of the argument. Mr. McClure said he can provide evidence that is sufficient in a court of law but not sufficient for determination of compliance. Ms. McLean said this puts the onus on the public to prove noncompliance instead of on the person who holds the permit.

Mr. Patten asked, what is the simplest form of recordkeeping DEQ requires of industry at the present time – is it a one page report with time slots, a checkbox for different practices showing what was done today or last Thursday? Mr. Bauer responded, when he worked in industry he had the ability to design his own form to perform a certain manual check each day. He had a form with thirty days pre-printed on one sheet – he manually entered the time, checked a yes/no box, and inserted the pressure. He restated that DEQ can make these forms as simple as needed – DEQ has a lot of flexibility in design.

Mr. Bauer said his concern related to the fact that the table gives 10 points for 24 hours and 5 points for 48 hours. If this was 10 points for 24 hours and 5 points for six months, it would be fairly obvious if you were incorporating in 24 hours or whether you were waiting six months. Because it is one day to the next day, it is pretty difficult to tell. He wondered if it would be fairly

obvious by observation to know if the operator is doing this every 48 hours. Are we arguing that it is difficult to tell between 24 and 48 hours, because then he said he would say just keep the 48 hour BMP with 5 points with compliance through observation and delete the 24 hour BMP. Ms. Kronberg asked if the group want to encourage the use of the 24 hour practice. Mr. Louks said these two BMPs were developed during the dairy tour to provide an incentive to rapidly incorporate material into the soil.

Ms. McLean asked if Mr. Patten could bring a list of the requirements for NMP recordkeeping to the next meeting.

Mr. McClure said, if the manager can be trusted to record he did an activity today, yesterday, and tomorrow, why cannot the manager be trusted to say he will do this activity. The comment was made that since the manager needs to keep fairly detailed records for other purposes, why cannot he also state when the material was incorporated. It was pointed out that a farm does not necessarily have just one manager; they overlap time periods and may even manage different parts of the operation. Some activities are performed by custom farm operators that may not be directly under the time influence of the manager.

Ms. Beard offered the idea that the inspector will need to have some flexibility in how much documentation is needed to determine compliance – some operators may be less reliable than others and the inspector may need more verification. Mr. McClure said that is the very thing that concerns him – in order to receive the points, the dairy needs to document. He restated that the dairy industry fears they will perform the BMPs but will not receive the points because their documentation might be inadequate by DEQ standards.

The committee could not reach consensus on this issue. More discussion will be held at the next meeting.

Incorporation of Manure within 48 Hours.
Definition: Tilling of field surface following liquid or solid manure application within 48 hours. Also effective in reducing hydrogen sulfide emissions and fly propagation.

Points: Open Lot - 5 points; Freestall Scrape – 5 points; Freestall Flush – 5 points

Compliance: Undecided - - Recordkeeping: documented twice: when applied and again when incorporated

Discussion: Consensus was not reached on method for determining compliance. Discussion will continue at the next meeting.

Nitrification of Lagoon Effluent.
Definition: Use of an engineered aeration system, typically fixed media, to convert stored wastewater ammonia to nitrate prior to irrigation. Also effective in reducing volatile organic compounds, biological oxygen demand, and odor during application.

Points: Open Lot - 10 points; Freestall Scrape – 10 points; Freestall Flush – 15 points

Compliance: Deviation Log

Low Pressure & Energy Application Systems (LEPA).

Definition: Center pivot and liner-move irrigation strategy to apply liquids at low pressures using drop nozzles. Larger droplets result in lower emissions but may cause infiltration problems on some soils. Designed systems and sprinkler packages should not exceed 35 psi. Low pressure overhead sprinklers and wheel lines do not qualify as LEPA technologies. Also effective on hydrogen sulfide and odor.

Points: Open Lot - 7 points; Freestall Scrape – 7 points; Freestall Flush – 10 points

Compliance: Observation

Freshwater Dilution.
Definition: Dilute irrigated wastewater by a minimum of 50% (1:1 ratio waste to fresh water) during all irrigation events. Dilutions can be made in approved mixing pond.

Points: Open Lot - 5 points; Freestall Scrape – 8 points; Freestall Flush – 8 points

Compliance: Depending on the system design, Observation or Recordkeeping

Pivot Drag Hoses.
Definition: Low pressure application method that allows the liquid to be applied on the soil surface directly in the row. This method decreases the amount of liquid lost to wind drift, and to decrease the energy costs associated with pumping enough liquid to maintain the high pressures required for the impact heads. Systems should use pressure regulators or ball valves to regulate flow from drag hoses. Also effective on hydrogen sulfide and odor.

Points: Open Lot - 8 points; Freestall Scrape – 8 points; Freestall Flush – 10 points

Compliance: Observation

Subsurface Irrigation.
Definition: Specialized irrigation method that allows for precise applications of liquid to the root zone of the plant. System requires specialized filtering system to handle wastewater solids and specialized "wastewater approved" drip lines should be used to prevent clogging. Also effective on hydrogen sulfide and odor.

Points: Open Lot - 10 points; Freestall Scrape – 10 points; Freestall Flush – 12 points

Compliance: Observation

REVIEW OF COMPLIANCE DECISIONS

Mr. Bauer asked everyone to review today's discussions with their respective groups and come to the next meeting prepared to finalize the BMP list.

SCHEDULE AND AGENDA FOR FUTURE MEETINGS

The next negotiated rulemaking meeting is scheduled for November 22, 2005, 9:00-noon at the DEQ offices in Boise. The agenda will include the following topics:

- Review and Finalize BMPs: Compliance Methods (Observation, Recordkeeping, Deviation Logs)
- Third Party Export

- Total Compliance Point Value
- Apply Ratings to Dairy-Tour Facilities
- Finalize Rule Language
- ISDA/DEQ Compliance/Inspection Agreement